



The use of indicators to promote local sustainability through digital platforms: the cases of Cascavel (Brazil) and Vila Nova de Gaia (Portugal)

Ana Claudia Marangoni Batista Campana¹

João Francisco Charrua Guerra²

Samuel Ronobo Soares³

Máriam Trierweiler Pereira⁴

Summary

The Agenda 2030 presents indicators and goals for global sustainability, but it is incompatible with municipalities because each municipality has its own particularities, whether due to geographical, cultural, or economic characteristics. The objective of this work was to analyze the effectiveness of local sustainability goals and indicators on digital platforms (disseminated on the internet as promoters of the 2030 Agenda in municipalities), through a case study in Cascavel (Brazil) and Vila Nova de Gaia (Portugal), with a view to global sustainable development. The methods used were literature review and case study. For this purpose, two programs promoting local sustainability were analyzed – the Sustainable Cities Program in Brazil, and the LocalSDG Platform in Portugal. Two medium-sized municipalities participating in these programs were addressed on the dedicated portals: Cascavel, Brazil, and Vila Nova de Gaia, Portugal – and from there, municipal good practices, goals, and indicators used were analyzed, and compared with the global indicators of the United Nations. It was observed that neither the indicators nor the goals strictly adhere to the UN guidelines (primarily designed for the national level), as they were and are developed in line with abstract global goals and are not well adapted to specific characteristics that are often unique and irreproducible. Therefore, it is important for indicators and goals to consider local realities, adapting to the real problems of each community, in terms of quality and quantity, to the dynamics and specificities of the local context they seek to address, in a process commonly known as "localization of the SDGs" (Sustainable Development Goals).

Keywords: 2030 Agenda Localization; LocalSDGs; Target Planning, Sustainable Urban Development Program

¹ Mestra em Sustentabilidade pelo Instituto Federal do Paraná (IFPR); Brasil, colaboradora no Instituto Federal do Paraná - Campus Umuarama; marangoni.arq@gmail.com; <https://orcid.org/0000-0001-9804-5132>; <http://lattes.cnpq.br/8668906889202532>.

² Sociólogo, Doutor e Mestre em Ciências Sociais pelo Instituto de Ciências Sociais da Universidade de Lisboa (ICS-ULisboa); Portugal, investigador no Instituto de Ciências Sociais da Universidade de Lisboa; joao.guerra@ics.ulisboa.pt; <https://orcid.org/0000-0003-1918-2273>.

³ Doutor em Letras-Literatura pela Universidade Estadual de Londrina. Brasil, docente no Instituto Federal do Paraná - Campus Umuarama. samuel.ronobo@ifpr.edu.br; <https://orcid.org/0000-0002-2027-9374>.

⁴ Doutora em Engenharia Química com ênfase em Gestão, Controle e Preservação Ambiental pela Universidade Estadual de Maringá; Brasil, docente no Instituto Federal do Paraná - Campus Curitiba. mariam.pereira@ifpr.edu.br; <https://orcid.org/0000-0003-0782-6967>; <http://lattes.cnpq.br/6867974583171879>.



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Abstract

The Agenda 2030 presents indicators and goals for global sustainability, but it is incompatible with municipalities because each municipality has its own particularities, whether due to geographical, cultural, or economic characteristics. The objective of this study was to analyze the effectiveness of local sustainability goals and indicators on digital platforms (promoted on the internet as part of the Agenda 2030 in municipalities), through a case study in Cascavel (Brazil) and Vila Nova de Gaia (Portugal), with a view to global sustainable development. The methods used were literature review and case study. For this purpose, two programs promoting local sustainability were analyzed – the Sustainable Cities Program in Brazil, and the LocalSDG Platform in Portugal. Two medium-sized municipalities participating in these programs were addressed on the dedicated portals: Cascavel, Brazil, and Vila Nova de Gaia, Portugal – and from there, municipal best practices, goals, and indicators used were analyzed, and compared with the global indicators of the United Nations. It was observed that neither the indicators nor the goals strictly adhere to the UN guidelines (primarily designed for the national level), as they were and are developed in line with abstract global goals and are not well adapted to specific characteristics that are often unique and irreproducible. Therefore, it is important for indicators and goals to consider local realities, adapting to the real problems of each community, in terms of quality and quantity, to the dynamics and specificities of the local context they seek to address, in a process commonly known as "localization of the SDGs" (Sustainable Development Goals).

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1 Introduction

Thinking about global sustainability in a transversal (including rich and poor countries) and systemic way (linking the different issues affecting humanity), in September 2015, the United Nations (UN) established the 2030 Agenda for Sustainable Development. It is an action plan for the planet and population, comprising 17 Sustainable Development Goals (SDGs) and 169 targets to be achieved by 2030 (UN, 2015). To this end, it has a monitoring plan consisting of 254 indicators that aim to identify progress and setbacks, deviations and corrections on the already long but not very fruitful path of sustainable development.



Each SDG has targets, which in turn should be monitored through indicators that can provide: i) a diagnosis of the situation; and ii) progress over time. These magnitudes, which, according to Van Bellen (2004), quantify and simplify information from complex data, turning it into accessible references, allow, if used well, to detect errors and opportunities for action to achieve a more sustainable world in the short term (until 2030).

However, sustainable development, or as some argue, just sustainability, is not without action at the local level where problems arise and will ultimately be solved (Schmidt and Guerra, 2018). Consequently, in order to take appropriate action, these indicators need to be adapted to the reality of each place, since not only do the needs of countries that are commonly referred to as more developed (richer) differ from those of countries that are commonly referred to as less developed (less rich and less capable of predatory consumption), but there are also different realities and specificities in different countries that require adaptation of goals and targets, and therefore of indicators. In Brazil, where there are 5,568 municipalities, a continental territory, enormous regional diversity and even greater socio-economic inequality, the need to adapt (i.e. “localization”) of targets and indicators is even greater. However, this does not mean that the same process is not needed in smaller countries such as Portugal, where there is also diversity. In any case, it is necessary to adapt the objectives and indicators for the implementation of the SDGs at the local level in order to maintain harmony between local needs, potential, culture and the municipal plans that must result from them. This 'localization' strategy is primarily intended to ensure greater effectiveness in tackling specific problems and to address the highest priority issues selected on the basis of the knowledge provided by the available indicators (Vanali, 2021).

In this context, it is important to emphasize the role of organizations and programs that address the SDGs in accordance with regional and local particularities and specificities, and how they can support municipal leaders and decision-makers in their quest for more sustainable local development. Ultimately, global sustainability is the result of collective efforts that start at the local level. If the success of efforts to implement sustainable development depends on a transversal approach that encompasses all levels - global, national, regional and local - it is necessary to start with the specificities of each territory, its economic production, its cultures and traditions, its local policies and to reconcile human activity with the potential of each biome (Boff, 2016).



In this perspective, two proposals to promote local/municipal sustainability were presented that work with national indicators of local/municipal sustainability, from which comparability is ensured between territories, their objectives and municipal goals: the Brazilian Sustainable Cities Program (SCP) and the Portuguese LocalSDG Platform, both digital platforms are disseminated on the internet in search engines when searching for keywords such as "Municipal Agenda 2030", "Local Agenda 2030", "local indicators" (plus the word Portugal), and have similar proposals, which made the comparison possible, because in addition to looking at reality objectively with the help of indicators, also reveals the sustainability of municipalities subjectively by disseminating best practices.. The purpose of disseminating these good practices is not to compare regions, but to present experiences that can become examples for addressing similar urban sustainability issues. After all, the 17th goal of the 2030 Agenda is to implement partnerships for sustainable development (UN, 2015).

Therefore, the objective of this work was to analyze the effectiveness of local sustainability goals and indicators on digital platforms (disseminated on the internet as promoters of the 2030 Agenda in municipalities), through a case study in Cascavel (Brazil) and Vila Nova de Gaia (Portugal), with a view to global sustainable development.

2 Theoretical Basis

According to Elkington (1997), the ideal model of sustainability is based on three main pillars and the interaction between them: an economic pillar, a social pillar and an environmental pillar. In some respects, the 2030 Agenda replicates this format but broadens the perspectives, for example on the relationship between the three original dimensions. In other words, if these three pillars - renamed "prosperity", "people" and "planet" - interact systematically with each other, it is pertinent to highlight the importance of the three dimensions in the complex game of interactions unfolding in the world. The truth is that there is no economy without people and no people without a planet. Hence the central role and overriding importance of environmental issues, since the future of humanity relies on them, as do the consequences of climate change, which no longer leave much doubt. (Guerra, Schmidt and Lourenço, 2019).

As for the other two "Ps" of the 2030 Agenda – "Peace, Justice and Effective Institutions" and "Partnerships and Means of Implementation", they appear as instrumental dimensions that must be ensured for the process to be effectively constituted throughout the



world. After all, these are essential conditions both for promoting the mobilization and commitment of the population - especially local populations suffering from the effects of environmental and social degradation - and for securing the means (financial and technical) for the successful implementation of the 2030 Agenda in all localities, including the poorest. (Guerra, Schmidt and Lourenço, 2019).

Therefore, it is all about change. A change that takes into account the planet and the people, without forgetting the multiple socio-geographical contexts and inequalities that today tend to increase. For the challenge of this change to have a tangible effect, grassroots mobilization play a central role, given a situation that requires collective and transversal commitment (Schmidt and Guerra, 2018).

This may be more than a utopia unlikely to be achieved. As O'Riordan (2014) points out, transition is already taking place in many local communities, very gradually and conditioned by the national and global political and socio-economic status quo. These initiatives to promote sustainability are specific examples of resistance. If used with pragmatism, intelligence and caution, the 2030 Agenda can contribute to overcoming this "hurdle" with a wide dissemination of the idea of systemic sustainability that ensures inclusion and access to services and goods, culture and the spread of local identity, in addition to democratization and political participation for all (Teixeira et al, 2012).

The localization of the 2030 Agenda can also contribute with monitoring, which encourages and enables, through indicators adaptable to different geo-economic contexts, more coherent actions allowing to overcome the wishful thinking, that is maintained only because it ignores reality. In this sense, global sustainability emerges as a result of the interaction of localized experiences and initiatives (Guerra and Schmid, 2016), and the different dimensions of sustainability - considered in interaction but not in equivalence - need to be developed at the local level, from the perspective of local communities.

In short, for the process to be effective and coherent, as Vanali (2021) points out, it is necessary for governments and citizens to carry out a territorialization of objectives and especially of indicators, translating global guidelines into concrete public actions and policies that are more attuned to people and to the promotion of quality of life with proximity policies.

In this context, the use of indicators as a tool for government action is certainly not new. Its application to sustainable development, however, became global through the Bruntland Report (CMMAD, 1987) and especially since the 1990s with the signing of Agenda 21, an



action program (precursor to 2030 Agenda) drawn up in Rio de Janeiro in 1992. (Malheiros, Coutinho and Philippi Júnior, 2012).

A good indicator must be measurable, accurate, have available data, be relevant, be easy to interpret, have reliable results, be observable, be cost-effective, be accessible to all stakeholders and provide comparability across time and place. (PCS, 2021). However, as highlighted by Adão and Polette (2016), the quality of an indicator is closely linked to the actions planned and the information obtained through it, as they may only quantify specific data for a census, or represent more complex vulnerabilities for a place.

They are therefore necessary tools for public management at its various levels, hence the interest in local indicators. According to Nahas and Monte-Mór (2015), the demand for indicators that systematize information and reveal problems often unknown to public managers has increased, especially in municipalities belonging to countries with high socioeconomic inequality, such as Brazil and, to a lesser extent, Portugal. This is confirmed by Teixeira et al (2012, p. 163), who point to sustainability indicators as “important tools both for guiding local public policies and for monitoring sustainability in the local development process by society itself” and therefore for mobilizing citizens. This coincides with the goals stated by the UN General Assembly in the 2030 Agenda: a plan of action for people, planet and prosperity, (which) also seeks to strengthen universal peace with greater freedom and social equality (UN, 2015).

At the local level, however, introducing public policies aimed at sustainability is complex, as they have to respond to multiple and sometimes conflicting specificities. This is an endeavor that deserves to be further developed in order to diagnose the situations and challenges faced by different municipalities in order to steer their territories towards a more socially inclusive, more ecologically balanced and more sustainable development for present and future generations. (Vanali, 2021). The principles are therefore expected to be translated into concrete actions (Réus and Andion, 2018) through the information provided by indicators that support the management of municipal secretariats' territorial development strategies and plans based on the proposed (but adapted, where necessary) targets in the 17 SDGs of the 2030 Agenda.

2.1 Sustainable Cities Program

The PCS (2021, pp. 28) defines itself as “an urban sustainability agenda that incorporates the social, environmental, economic, political and cultural dimensions into



municipal planning”. It has 260 indicators in thematic areas linked to the 17 SDGs, and presents an accessible direction, starting from the local level for the implementation of the 2030 Agenda in Brazil (PCS, 2021). Machado (2013) points out that sustainable development programs are planning tools that guide actions according to the challenges presented and stimulate the search for solutions through projects at the municipal, state or federal level.

By the end of 2023, more than 300 municipalities had joined the PCS, which mainly targets municipal leaders and decision-makers by providing manuals and guides with indicators classified into: qualitative - which present a set of urban characteristics; and quantitative - which show numerical information about the facts.

The PCS consists of a set of indicators classified into 4 categories: contextual indicators - which indicate the reality of the municipality; challenging indicators - which indicate specific characteristics that require data collection on the ground; indicators of democratic governance attributes - which refer to the characteristics of the institutional structure; and indicators of economic, social and environmental performance and well-being - which allow comparison through threshold parameters (PCS, 2021).

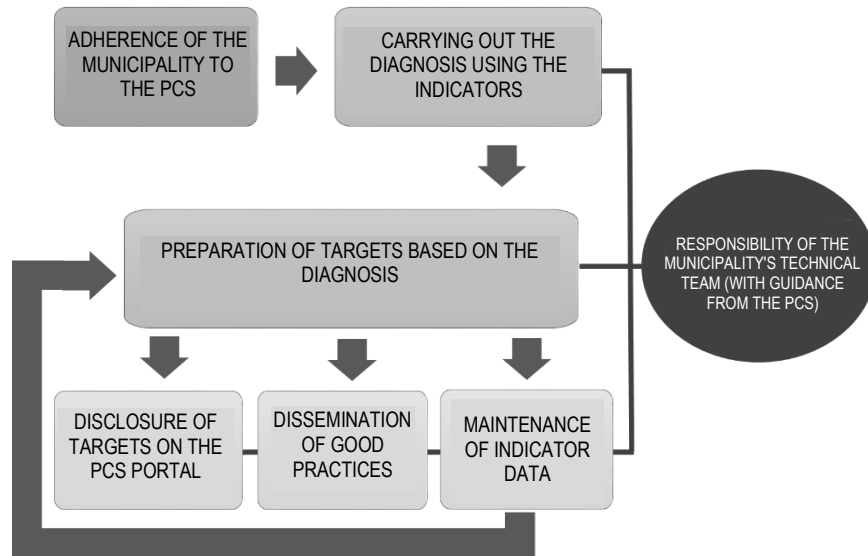
This program is the result of the Nossa São Paulo Movement, which started in 2007 and aims to make the city of São Paulo a just and sustainable place. Created through the partnership of hundreds of individuals and organizations, it is considered a non-partisan institution funded by national and international companies and private foundations (PCS, 2015). This is a free institutional initiative and it is up to municipal public managers to bear only the costs of maintaining the program, such as hiring a team to carry out data collection and management of the municipal program (PCS, 2021).

By joining PCS, the mayor signs a letter of commitment to the city, that gives him access to the cidadessustentaveis.org.br portal. The responsible persons, appointed by the public managers of the city, enter the information about the municipality in the portal and, with the help of the PCS team, carry out a diagnosis of the city through the indicators. This process can be carried out by municipal staff with or without third party consultancy. With the diagnosis prepared it is possible to identify what deficiencies are found in the city, and set goals to improve the situation in a given time. The target plan is also carried out by public managers with the help of the PCS. On the PCS portal, in addition to being able to feed the sets of municipal indicators, it is possible for managers to disseminate the good practices carried out in the city (PCS, 2021).



Figure 1 provides a summary flowchart of the steps and responsibilities undertaken by municipalities in joining the PCS, which is an ongoing process where, as targets are put into practice, indicators are recalculated and thus a new target plan is drawn up in line with the results.

Figure 1: Flowchart of steps and responsibilities of the signatory cities to the PCS



Source: PCS (2021); Own elaboration.

In short, the PCS offers support to signatory cities, but does not replace the obligations of their managers and decision-makers. Municipal teams retain full autonomy in all processes and can use the indicators in a way that suits them.

To diagnose the sustainability of all Brazilian municipalities (even those that have not signed the agreement), PCS, in partnership with the Sustainable Development Solutions Network (SDSN), launched the Sustainable Cities Index - Brazil (IDSC-BR) in 2022. The IDSC-BR is a public management tool consisting of 100 reference indicators linked to the 17 SDGs, arranged on an interactive open access platform, with information that measures the degree of resilience of 5.570 Brazilian cities (considering 5.568 municipalities, plus the Federal District and the District of Fernando de Noronha), through colors and scores (ICS, 2022). With this assessment, the strengths and weaknesses regarding the sustainability of each municipality are made explicit, although it only addresses the reference indicators and does not deal with the particular characteristics, which is only exposed with the use of specific indicators.



2.2 LocalSDG Platform

In Portugal, the LocalSDG Platform was created, which, in December 2023, completed three years of activity⁵.

In addition to the online portal, which allows the monitoring of indicators (specific and reference) and the mapping of local initiatives (civil society-led projects and ongoing municipal good practices), it has an intervention strategy based on the promotion of "local resilience labs", consisting of training sessions (targeting municipal technicians and policy makers) and participatory sessions (targeting stakeholders in municipal communities) (LocalSDG Platform, 2022a).

With free access to the basic version and inclusion of all Portuguese municipalities on the benchmarks, the platform aims to mobilize and empower municipalities and municipal communities to comply with the SDGs at the local level by providing information (benchmarks) and training municipal technicians in regional information sessions. However, to gain access to all the functionalities available in the LocalSDG portal, such as distributing rewards, specialized communication and receiving advisory services targeted to the specific needs of each municipality, it is necessary to pay an amount that depends on the financial capacity of each municipality as measured by municipal purchasing power (LocalSDG Platform, 2022a).

By the end of 2022, the LocalSDG portal reached the number of 156 indicators produced (adding benchmarks and specific indicators) and 87 signatory municipalities (approximately 28.25% of the 308 municipalities in the country): 29 in the extended version and 58 in the baseline version (LocalSDG Platform, 2022a).

The LocalSDG Platform (2022a) is the result of a partnership between CNADS - National Council for Environment and Sustainable Development (an independent national body with advisory functions, which brings together the interests of institutions and civil society), OBSERVA - Observatory of Environment, Territory and Society of the Institute of Social Sciences of the University of Lisbon, MARE - Centre for Marine and Environmental Sciences of the Faculty of Science and Technology of the New University of Lisbon and 2adapt (a

⁵ Cerca de três anos antes o Portal foi preparado em uma versão piloto com a participação de alguns municípios emblemáticos para afinar metodologias, ensaiar a criação e adaptação de indicadores e perscrutar necessidades a partir das realidades locais.

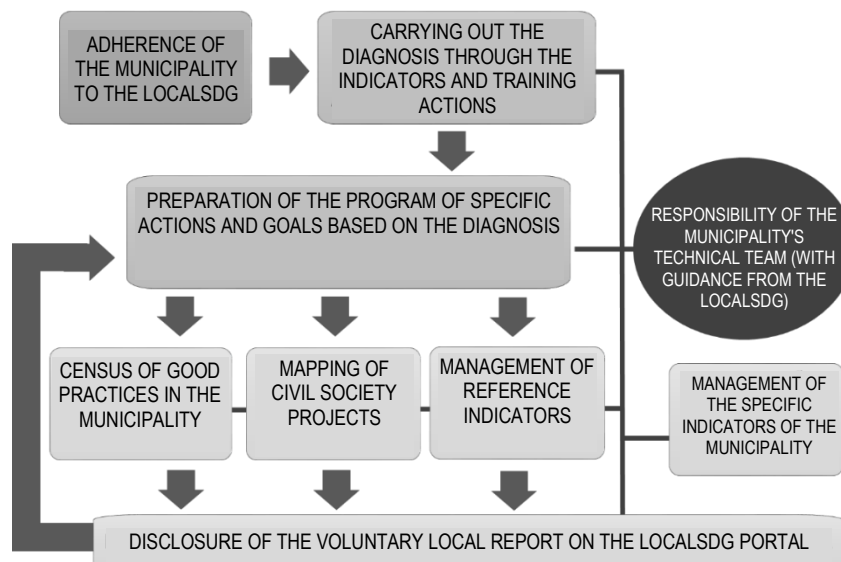


technology start-up for climate adaptation services that created and manages the LocalSDG portal).

The Platform has a team that is equipped to promote informed use of the LocalSDG portal, map local initiatives to promote sustainability, and organize mobilizing workshops on local sustainability targeting different social groups (including decision makers and municipal technicians). To carry out this task, which seeks comprehensiveness and transversality while addressing sustainability at the local level, the project relies on the contribution of municipalities and in its initial phase it also relies on the financial support of the “La Caixa” Foundation (LocalSDG Platform, 2022a).

This engaging and mobilizing strategy thus aims to drive the implementation of the 2030 Agenda by engaging the different members of municipal communities with an approach that includes everything from the daily lives and behaviors of ordinary citizens to the technical and political decision-making process in municipalities. For this purpose, it is divided into four main characteristics that complement each other: i) comprehensiveness - inclusion of all SDGs; ii) local rooting – creation of indicators based on local reality; iii) connectivity - direct link between municipal portals and pages and the LocalSDG Portal; and iv) access to innovative data and processes - supported by a transdisciplinary team composed of scientists from different fields and even from different universities, public organizations (CNADS) and a scientific board specialized in the different areas covered by the SDGs and recruited among renowned experts in the Portuguese panorama (LocalSDG Platform, 2022a).

Figure 2: Flowchart of steps and responsibilities of the signatory cities to the LocalSDG





Source: LocalSDG Platform (2022a); Own preparation.

Thus, adherence to LocalSDG (Figure 2) is relatively similar to PCS: municipal leaders select the basic or enhanced version, municipal offices conduct diagnostics using the indicators available on the LocalSDG portal, and, where appropriate, mapping initiatives (projects and good practices) as well as the results of the participatory sessions conducted within the “Sustainability Labs”. With the help of this diagnosis, they can better engage local communities, guide their actions by refocusing goals and objectives based on available information, and finally produce “Local Voluntary Reports” (LocalSDG platform, 2022a).

In LocalSDG, the responsibility for managing the portal not the municipality's alone. On the contrary, the LocalSDG portal is an essential tool for all municipalities as it contains information that is relevant for their actions, but is managed by the LocalSDG team in collaboration not only with the municipality but also with municipal civil societies (stakeholders). This means that the collection, selection, targeting and provision of benchmarks - with top-down justification as they are collected from official information: central government, ministries, etc. - are the sole responsibility of the LocalSDG team. Specific indicators - with a bottom-up rationale originating from municipalities and often dependent on the actions of their governments - are primarily the responsibility of municipalities, as is the information provided on good municipal practices promoting sustainability. By choosing the baseline version, municipalities are limited in providing information on good practices (no more than five), are not allowed to introduce specific indicators, and are not allowed to develop "sustainability labs" on their territory to engage technicians, policy makers, civil society and the population at large in achieving the SDGs.

Projects originating from civil society, however, can and are encouraged to make information available on the LocalSDG Portal, in order to inspire their colleagues. In this case, and for this reason, there are no limits, not even for non-signatory municipalities.

3 Methodological Options

This is a qualitative study using the bibliographic review method, in which books, articles, PCS and LocalSDG secondary documents were analyzed, in addition to the 2030 Agenda itself and its relevant objectives and indicators to contextualize the topic.

Two municipalities were selected for the case study: Vila Nova de Gaia, from the district of Porto, in Portugal, which is part of the LocalSDG platform with the base version; and



Cascavel, in the state of Paraná, in Brazil, signatory of the PCS. The choice of these municipalities was based on their size (number of inhabitants), and also on the availability of data.

Among the most populated municipalities in Portugal, Vila Nova de Gaia, with 300.018 inhabitants and an area of 168 km², is the municipality with the most good practice information on the LocalSDG portal at the end of 2021 (LocalSDG Platform, 2022b). When we compared these characteristics with the PCS signatories, we arrived at the municipality of Cascavel, since among the cities with a similar population in Paraná it has the most complete data in the PCS portal. Its total population is 332.333, and its surface area is 2.101.07km² (PCS, 2021).

Good practices, targets and indicators related to these programs were analyzed and compared with the indicators from the 2030 Agenda SDG portal. All information for this analysis was found on the PCS electronic portals, the Cascavel City Hall portal, the LocalSDG portal and the United Nations SDGs page.

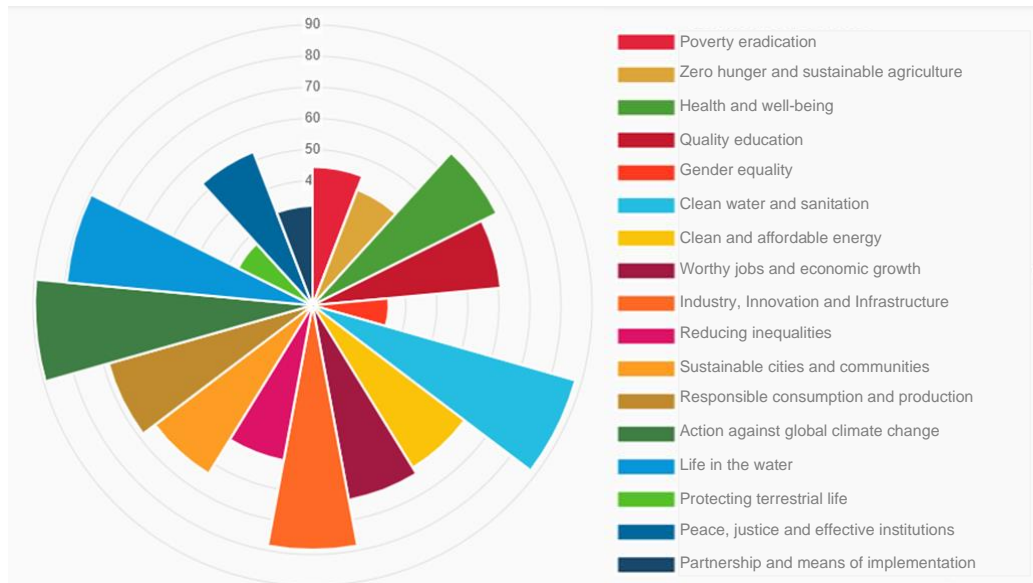
4 Results

According to the IDSC-BR assessment, the city of Cascavel has an overall sustainability score of 58.3 (given that 100 is the highest score and 0 is the lowest) and is ranked 235th in the overall ranking of 5.570 Brazilian cities (ICS, 2022). The IDSC-BR, presents a radar graph with the average scores of the 100 indicators evaluated for each SDG (figure 3).

A superficial assessment of the graph in Figure 3 reveals that the SDGs with the worst Cascavel scores, below 50, are SDG 1 - eradicate poverty, 2 - zero hunger and sustainable agriculture, 5 - gender equality, 15 - protect the earth and 17 - partnerships and means of implementation (ICS, 2022).



Figure 3 - SDG assessment radar chart for Cascavel.



Source: ICS, 2022.

However, Cascavel is striving to become a more sustainable municipality, as according to the Sustainable Cities Agenda (2021) Target Plan, it has been a signatory to the PCS since January 2017 and has renewed its commitment in 2021. The municipality has a detailed target plan based on the 17 Sustainable Development Goals and thematic axes (the former structure of the PCS), and addresses 104 indicators out of a total of 260 in the PCS (Table 1).

Table 1: SDG implemented in Cascavel according to the PCS research axes, and the total number of indicators for each axis respectively

Axis	Related SDG	No. of indicators
Axis 1 - Governance	SDG 16- Peace, justice and effective institutions	8
Axis 2 - Common Natural Assets	SDG 6 - drinking water and sanitation SDG 13 - action against global climate change SDG 14 - life in water SDG 15 - terrestrial life	7
Axis 3 - Equality, Social Justice and Culture of Peace	SDG 1 - poverty eradication SDG 3 - health and well-being SDG 10 - reducing inequalities SDG 11- sustainable cities and communities SDG 16- Peace, justice and effective institutions	11
Axis 4 - Local Management for Sustainability	SDG 15 - terrestrial life	2
Axis 5 - Urban Planning and Design	SDG 11- sustainable cities and communities	1
Axis 6 - Culture for Sustainability	SDG 4 - quality education SDG 11- sustainable cities and communities	6
Axis 7 - Education for Sustainability and Quality of Life	SDG 4 - quality education	18



Axis	Related SDG	No. of indicators
Axis 8 - Dynamic, Creative and Sustainable Local Economy	SDG 2 - Zero hunger and sustainable agriculture SDG 8 - Worthy jobs and economic growth SDG 9 - industry, innovation and infrastructure SDG 12- Responsible consumption and production	14
Axis 9 - Responsible Consumption and Lifestyle Choices	SDG 6 - drinking water and sanitation SDG 12- Responsible consumption and production	10
Axis 11 - Local Action for Health	SDG 2 - Zero hunger and sustainable agriculture SDG 3 - health and well-being	27
NOTE: Axis 10 - better mobility, less traffic, and 12 - from local to global - were not mentioned in the Cascavel target plan.		

Source: Sustainable Cities Program Target Plan (2021); Own preparation.

Among the 37 good practices disclosed by the Municipality of Cascavel on the PCS electronic portal, two projects were highlighted: Cultura em Ação (Culturação) and FeliCidade do Idoso (PCS, 2021) Program, due to the availability of information.

The Cultura em Ação project is an initiative to encourage culture, which offers various artistic workshops, such as music, theater, dance and visual arts, aimed at the entire community of Cascavel, from the age of 7. It started in 2017, and in 2018 it was reformulated into the Culture in Action program, under which 50 free workshops are held for the public, divided into three levels that run concurrently: level 1 - designed for non-professionals with no experience in the artistic subjects on offer; level 2 - for amateurs with experience who wish to improve; and level 3 - for which proof of experience in the intended artistic field is required (PCS, 2021; City Hall of Cascavel, 2021). The aim of the project is to spread culture, to promote communication between citizens and interaction between the arts, as well as to give students the opportunity to professionalize. The results of the workshops are presented in broadcasts, cultural presentations and art exhibitions open to the whole community (PCS, 2021; City Hall of Cascavel, 2021).

According to the PCS Goal Plan (2021), Cascavel intends to expand the Cultura em Ação program. With reference to this good practice, one of the PCS indicators analyzed is the number of cultural centers, spaces and houses of culture, public and private, per 10 thousand inhabitants. The aim of the municipality is to carry out a diagnostic of the indicator by the end of 2022 and between 2023 and 2024 to adjust the ratio of cultural centers so that it reaches as close as possible to 1 per 10,000 inhabitants (PCS, 2021). This indicator is part of Axis 06 - Culture for Sustainability and is linked to SDG 4 (PCS, 2021). Among the actions planned are



the adaptation of a square as a cultural space, the expansion and preservation of existing cultural spaces, the creation of “Rua Cultura e Saber”, and the maintenance and expansion of cultural festivals and performances in the city (Sustainable Cities Program Target Plan, 2021).

Regarding the indicators for the global SDGs, published on the United Nations portal, the only one with reference to culture is indicator 11.4.1: “Total expenditure (public and private) per capita spent on the preservation, protection and conservation of all cultural and natural heritage (...)”. Assuming that the comparability of the indicators imposes some limitations, what will leave no doubt is that the information obtained from them is insufficient to ensure access to culture for all, since it only speaks of financial resources and not of their distribution among the population, so that spending can be concentrated in only one social and cultural segment and not targeted at a wider range of areas and potential beneficiaries.

As for the FeliCidade do Idoso program, it is a municipal government initiative created in 2018 that proposes the introduction of a reference space called “Cidade do Idoso [City of Seniors]”. This space is expected to promote the wellbeing of people aged 60 and over through sporting, recreational, educational, artistic and cultural activities and an appreciation of life experiences (PCS, 2021; City Hall of Cascavel, 2021). In the beginning, the “Cidade do Idoso” was decentralized, it took place in some parts of the city. However, in September 2021, in order to increase the capacity for action and mobilization, it is concentrated in an area of the recently renovated Tarquínio Park. The park has 77,000 square meters of native forest, streams, hiking trails, rest areas and lakes. Thanks to these characteristics, the space has a capacity for 300 elderly people and to ensure the physical and mental health of this part of the population, in addition to food and the availability of health professionals, it offers activities from Monday to Friday, from 8:00 am to 5:00 pm (PCS, 2021; City Hall of Cascavel, 2021).

The Sustainable Cities Program Target Plan (2021) indicates that with respect to Axis 3 (Equity, Social Justice and Culture of Peace), Cascavel intends to promote the participation of the entire population in activities focused on health and quality of life, with priority for the elderly and at-risk groups. Thus, the municipality elected two indicators of the PCS focused on older adults. One of these, included in SDG 16, is: aggression against the elderly - number of people aged 60 years and over hospitalized in the public health network for possible aggression, per 10,000 population. The monitoring by the social assistance with the registration of the activities carried out within the programs aimed at the elderly is another of the planned actions



that complement the program and allow its monitoring and evaluation (Sustainable Cities Program Target Plan, 2021).

Another selected indicator related to SDG 16 - "elderly population" - consists of three sub-indicators: i) the presence of a Council for the Elderly in the municipality, ii) a list of policies and spaces targeting the elderly, and iii) the percentage of citizens over 60 living in the municipality. The purpose of this indicator is to register the social assistance units that provide care for the elderly with the Municipal Council on the Rights of the Elderly and to prepare an annual action plan for social assistance units targeting the elderly (Sustainable Cities Program Target Plan, 2021).

In this regard, and once again because the requirements of comparability demand an abstraction that may in some cases be restrictive, the only indicator on the older population published by the United Nations portal is the 1.3.1 global indicator: "Proportion of the population covered by social protection schemes, by sex and for the following population groups: (...), elderly population, (...) and other vulnerable population groups" (United Nations, 2021). As might be expected, the requirement for objectivity and universality does not include any reference to the quality of life of older people, or even to the effectiveness of the services of the social assistance programs that support them.

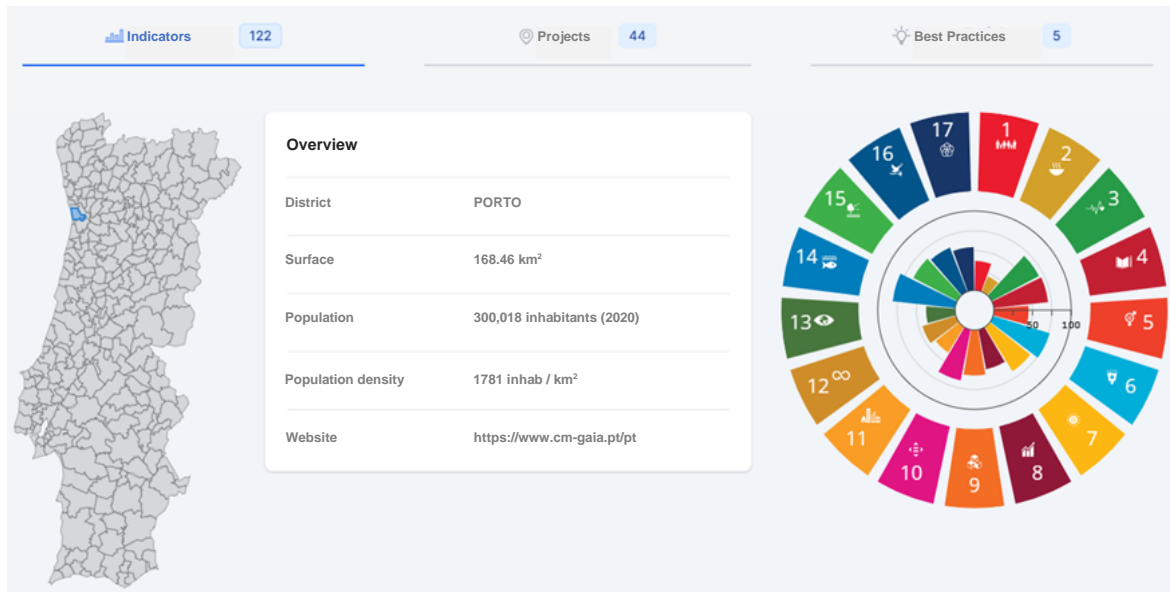
In Portugal, the LocalSDG Platform (2022b) provides, for the municipality of Vila Nova de Gaia, 122 reference indicators, 44 projects promoted and/or led by Civil Society and 5 municipal good practices⁶ (Figure 4).

The graph that accompanies Figure 4 on the right shows which SDGs the municipality performs better (SDGs 3, 4, 6; 10 and 14) and worse (SDG 1, 2, 5; 11, 12 and 13). Moreover, clicking on each of the SDGs in the SDG wheel shows information on the number and area of benchmarks available for each SDG, and clicking on these benchmarks shows a comparison with the average of the 308 Portuguese municipalities, as well as their evolution over time.

⁶ No caso das boas práticas municipais, o município está limitado pela modalidade de adesão que escolheu (Base), modalidade que impede igualmente que acrescente indicadores específicos que podem fazer a diferença em alguns setores, mas não garantem universalidade, rastreabilidade, objetividade e comparabilidade.



Figure 4: Basic characterization of Vila Nova de Gaia on the LocalSDG Portal



Source: LocalSDG, 2022b.

Therefore, on the LocalSDG portal it is possible to understand the current position of the municipality in relation to the 17 SDGs (SDG Round Table) and the information that makes them up: indicators, baseline value and target value defined by the LocalSDG team for the 308 Portuguese municipalities, and also the evolution of each indicator over time in relation to the national value and the average value for Portuguese municipalities.

Table 2 shows the number of benchmarks per SDG applied in Vila Nova de Gaia, totaling 122.

Table 2: SDGs applied in Vila Nova de Gaia according to the total number of corresponding indicators

Related SDG	No. of indicators
SDG 1 - Poverty eradication	8
SDG 2 - Hunger eradication	4
SDG 3 - Healthy education	15
SDG 4 - Quality education	10
SDG 5 - Gender equality	4
SDG 6 - drinking water and sanitation	4
SDG 7 - Renewable energies	7
SDG 8- Worthy jobs and economic growth	9
SDG 9 - Innovation and infrastructure	5
SDG 10 - Reducing inequalities	5
SDG 11- Sustainable cities and communities	14
SDG 12- Responsible consumption	4
SDG 13 - Fighting climate change	7
SDG 14 - Protect marine wildlife	3



Related SDG	No. of indicators
SDG 15 - Protect terrestrial life	8
SDG 16 – Peace and justice	9
SDG 17 - Partnerships for the goals	6
NOTE: SDG 2 is the same for the whole world, but in Portugal it is shortened to “Eradication of hunger”, while in Brazil it is called “Zero hunger and sustainable agriculture”.	

Source: LocalSDG Platform (2022b); Own preparation.

Among the 5 good practices that can be disseminated from the municipality of Vila Nova de Gaia, published on the LocalSDG platform (2022b), two have been highlighted here: Gaia Aprende +, and Gaia + Inclusiva, as they presented more consistent information. As these are municipal practices, the information was provided by the municipal services themselves.

Gaia Aprende + is a public educational initiative for children, which aims to provide full-time education (two periods), with curricular and extracurricular components. It emerged as a mobilizing tool for social change, to meet the needs of families, is not compulsory and currently serves 2,643 pupils a year at an annual cost of €1,400,000 (LocalSDG Platform, 2022b).

According to the information provided by the municipality of Vila Nova de Gaia on the LocalSDG platform (2022b), Gaia Aprende+ is linked to five SDGs: 4, 8, 10, 11 and 16. Among the indicators involved with the theme, the “gross preschool enrollment rate (%)” stands out. This indicator is growing in Vila Nova de Gaia, in 2021 it was 86.7%, and the target set for 2030 is to reach 100%. The base value - the current average for Portuguese municipalities - is 76%. If results maintain current progress, the projection is 108% for 2030, meaning the target will be reached ahead of time.

Another indicator worth noting is the “transition/completion rate in basic education (%)”. The base value is 85.6%. In 2021, Vila Nova de Gaia reached 97.1%. The target for 2033 is 100%, however, according to the projection, in line with the trend of recent years, the target will be reached before 2030.

The Gaia + Inclusiva program is a strategic social action mechanism that aims to provide comprehensive assistance. A diagnosis of the citizens (usually the household) is carried out and, based on this, assistance is defined according to their needs. The program covers economic deprivation, education, employment, housing, health, etc. Municipal social assistance assists an average of 1,810 people per year, and the program has an annual cost of 250,000 euros (LocalSDG Platform, 2022b).



According to the information provided by the municipality on the LocalSDG portal (2022b) the Gaia + Inclusive initiative meets five SDGs: 1, 2, 3, 10 and 11. Among the indicators that relate to this initiative, some referring to the eradication of poverty stand out, such as: “Beneficiaries of social insertion income, social security per 1000 working-age inhabitants”. The baseline value is 67.6%, in 2021 it showed 52.4% and the target is to reduce it to 16.1%. However, the projection for 2030 is at 28%, which indicates that new actions need to be promoted, or existing ones strengthened, for the target to be reached within the stipulated time frame.

Another indicator is the “Proportion of beneficiaries of social security sickness benefits in relation to the working age population (15-64 years)”. The baseline value of the indicator is 10.5%, the target is for it to fall to 4.4% by 2030. However, in 2020, a value of 12.9% was recorded in Vila Nova de Gaia, and it is projected to reach 20.9% (LocalSDG Platform, 2022b). Perhaps the pandemic that has been spreading since 2020 explains this lag, but if this trend continues, the very sustainability of the Portuguese social security system will be threatened, especially if the same trend manifests itself in other populous municipalities. On the other hand, since the baseline only allows the municipality to show 5 good practices on the LocalSDG portal, it may be that some municipal action has already been taken to address this situation and this would be important information to consider in the systematic evaluation that municipal resilience requires.

When comparing the local ODSL indicators for the municipality of Vila Nova de Gaia with the global indicators published on the UN portal relating to early childhood education, the status of the following indicators stands out among them in Table 3.

Table 3: Global indicators published on the UN Early Childhood Education/Enrollment Portal and their status

UN global indicators	Status
1.a.2. - Share of total public spending on basic services (education, health and social protection	In progress
4.7.1 - Degree to which [...], (II) education for sustainable development is integrated into (a) national education policies; (b) school curriculum; [...] and (d) student assessment.	No data
4.6.1 – “Percentage of the population in a given age group achieving at least the minimum proficiency level in (a) reading and writing and (b) mathematics, by gender.	No data
4.2.1 - Proportion of children aged 24-59 months with adequate health development, learning and psychosocial well-being, by gender.	Under review
4.1.2 – Primary and secondary school completion rate.	Produced
4.1.1- Ratio of children and young people (a) in the second and third years of primary education; (b) at the end of the initial years of primary education [...] who have attained a minimum level of proficiency in (I) reading and (II) mathematics, by gender.	Under review



UN global indicators	Status
4.5.1- Parity indexes (female/male, rural/urban, income, etc.) [...] for all indicators in this list that can be disaggregated.	Produced

Source: UNITED NATIONS, 2021; Own preparation.

Although the list of UN indicators produced and analyzed for the SDGs on quality education is large, some features, such as free education, are not addressed. In some countries, it is the duty of the municipality or state to guarantee free education at the first levels of education.

In Portugal, it does not make much sense to use these universal education indicators for implementation in municipalities, as most public education policies are the responsibility of central government, not local authorities. Municipalities can only participate in the implementation of policies by cooperating in maintenance, canteens, hiring support staff, etc. A role is therefore reserved for municipalities, which becomes more important as they move up the educational ladder: municipalities have more say in kindergartens and little in universities. But in any case, the situation with schools in a municipality, regardless of the responsibilities of its politicians and the capacity of its technical specialists, is a characteristic factor that cannot be underestimated.

With regard to poverty eradication, the situation of the United Nations global indicators in Table 4 stands out.

Table 4: Indicators published on the United Nations portal, referring to the eradication of poverty, and their situations.

United Nations Indicators	Status
1.a.1 - Total official development assistance grants from all donors that focus on poverty reduction [...].	Under review
1.a.2 – Ratio of total public expenditure on essential services (education, health and social protection).	Under review
1.b.1 – Public social costs for the less well-off	Under review
1.1.1 - Ratio of population living below the international poverty line [...]	Produced
1.2.1 – Ratio of population living below the national poverty line [...]	Produced
1.2.2 - Ratio of men, women and children of all ages living in poverty in all dimensions according to national definitions.	Under review
1.3.1 – Ratio of the population covered by social protection schemes, by gender and for [...] population at risk of poverty and other vulnerable population groups.	No data
1.4.1 – Ratio of population living in households with access to basic services.	Under review

Source: UNITED NATIONS, 2021; Own preparation.



Regarding the SDGs to eradicate poverty, the global indicators are similar to those of the LocalSDG platform in Portugal, with changes in the targets that are adapted to the reality of Portuguese municipalities, which are still very diverse.

When analyzing the results of this comparison, it was noted that the United Nations offers baseline indicators that can be used in different cases and regions, but does not preclude the need for indicators that are tangible for the territory of application. In this regard, attention was drawn to two issues:

- 1) UN indicators and targets do not always make sense for all national realities. For example, measuring hunger or education in a low-income country is certainly more important (and needs very different parameters) than in Portugal;
- 2) The local/municipal level adds even greater differences. Often, because there are areas that depend exclusively or predominantly on national policies, municipalities are unable to intervene or have very little influence or, worse still, data is not even available at municipal level.

For Puentes et al (2021), the indicators proposed by the UN in the social context of sustainability indicate quantitative information and no qualitative measurement. The authors point out that most of these indicators focus on numerical data, proportions and percentages and do not take into account service qualities, individual perception, etc. Therefore, the dissemination of best practices and projects by PCS and LocalSDG is essential as they do not represent only quantitative information. Perhaps for this reason, the LocalSDG portal provides space not only for specific indicators that can take more qualitative forms, but also for good municipal practices and civil society projects, in addition to capacity building in this area. All together, after all, it will make it possible to achieve the purposes of the 2030 Agenda: to leave no one behind (UN, 2015).

Comparing the PCS and LocalSDG programs, it was found that although they have different methodologies, both work with a set of indicators that adapt to national and especially municipal realities, strive for local development and thus contribute to global development. It is a strategy of changing the small scale (neighborhoods, communities, municipalities) to affect the world as a whole. The term 'think global, act local' emerged at Eco 92, when Agenda 21 was drawn up. This fundamental and indispensable principle to ensure the change that everyone advocates, includes the citizen in administrative practices and decision-making (UNCED, 1992). Public participation and sustainable development are therefore inextricably linked and



the two programs presented here seek to respond to this challenge. The state (central and/or federal) has an inductive role in this process and certainly covers all levels, but actions are usually carried out in municipalities due to their proximity to everyday life: with citizens and the problems that affect them, and based on them take appropriate actions and propose solutions (Réus and Andion, 2018).

In other words, to improve the implementation of the SDGs at the global level, it is necessary to start at the local level, and for this it is important to have tools such as PCS and LocalSDG that help to “read” local realities and support the adaptation of indicators targeted to the specificities of each municipality. After all, each has its own characteristics and specific needs that must be taken into account in order to reduce inequalities and promote the participation of all sectors of society in the common efforts that are essential to the sustainable development process.

5 Conclusion

The results presented, as well as the theoretical basis, lead to the conclusion that it is essential to develop indicators according to local realities, as each city or country has very different characteristics and what works for some is not efficient for others. The selection and development of these indicators requires skilled technical staff, and programs such as PCS and LocalSDG are very important in this regard they assist municipalities not only in selecting these indicators, but also in reading and interpreting them, assisting in more effective target plan development.

The United Nations' own sustainability indicators (produced or analyzed) are highly relevant and meet basic requirements that ultimately guide action and achieve a more sustainable future, but they are not fully applicable to all places as they were and are developed in favor of abstract global targets that are poorly adapted to specificities and characteristics that are often unique and irreproducible. Therefore, it is important that indicators and targets do not lose sight of local realities, adapting to the real problems of each community. While in some developed countries, for example, the problem of hunger is almost non-existent, obesity may be an issue that needs to be addressed. This is in addition to the many other problems that mostly affect richer societies, such as aging populations and therefore the growing need to consider the very sustainability of social security systems in these countries.



In addition, it is noted that if municipalities use the indicators to develop a well-founded local target plan, they can transform this information into a credible, clear and appropriate reference tool by ordinary citizens and municipal technical services. Data for the implementation of the indicators should therefore not depend solely on regional or national authorities, which often do not submit censuses with the frequency required for the analyzes. Municipalities need to find ways to collect reliable information in a way that is not just about political power, to avoid utopian diagnoses, and to involve citizens in investigating failures, drawing up targeted plans and proposing concrete indicators.

Linking these plans to these indicators also makes it possible to ascertain whether the target is near or far from being achieved, to develop strategies for achieving them and, above all, to monitor actions so that deviations are at least minimized, and to ascertain whether good practices are producing satisfactory results or not.

A suggestion for the continuity of this research is, through the PCS, to conduct a study of targeted city plans that continually maintain metrics, analyze actions and projects, and determine if they are making progress toward sustainability. Through LocalSDG, a possible approach could be the study of Voluntary Local Reports, which are expected to be increasingly produced by municipalities.

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